

REMARKS

Specification Objection. In the Non-Final Office Action, Examiner Barnes objected to the specification for failing to include headings and therefore suggested headings to be included within the specification. In view of the fact that heading are not required in accordance with MPEP §608.01(a), the Applicant hereby respectfully declines to add the headings suggested by Examiner Barnes to the specification.

Specification Amendments. The Applicant has amended the specification herein to delete the term “means” from the specification to prevent any unintended application of 35 U.S.C. §112, ¶6 to the claims. No new matter was introduced by the amendment of the specification herein.

Claim Amendments. Except for an amendment of claim 1 for purposes of obviating a 35 U.S.C. §112, ¶2 rejection of independent claim 1 as subsequently described herein, the Applicant has amended the claims 1-7, 9, 11-14, 18, 20 and 23 herein to delete the term “means” from the claims to prevent any unintended application of 35 U.S.C. §112, ¶6 to 1-7, 9, 11-14, 18, 20 and 23. No new matter was introduced by the amendment of claims 1-7, 9, 11-14, 18, 20 and 23 herein.

Claim Rejections. In the Non-Final Office Action, Examiner Barnes rejected pending claims 1-6, 10-15 and 19-21 on various grounds. The Applicant responds to each rejection as subsequently recited herein, and respectfully requests reconsideration of the present application:

- A. Examiner Barnes rejected independent claim 1 under 35 U.S.C. §112, ¶2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention

The Applicant has amended independent claim 1 herein to delete “especially for measuring machines, manufacturing machines or the like” from independent claim 1. Withdrawal of the rejection of independent claim 1 herein under 35 U.S.C. §112, ¶2 as being indefinite is therefore respectfully requested.

- B. Examiner Barnes rejected claims 1, 6, 10, 15, 19 and 21 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,844,666 to *Van Engelen* et al.

The Applicant has thoroughly considered Examiner Barnes’s remarks concerning the patentability of claims 1, 6, 10, 15, 19 and 21 over *Van Engelen*. The Applicant has also thoroughly re-read *Van Engelen*. To warrant this §102(b) rejection of claims 1, 6, 10, 15, 19 and 21 and 24, each and every element as set forth in the independent claims 1, 10 and 19 must be either expressly or inherently described in *Van Engelen*. See, MPEP §2131. The Applicant respectfully traverses this §102(b) rejection of independent claims 1, 10 and 19, because *Van Engelen* fails to describe, expressly or inherently, the following limitations of independent claims 1, 10 and 19:

1. “wherein the or each gravity compensation controller (16; 25) uses the output signals generated by the or each position controller (13) as input signals, thereby generating output signals used by the or each gravity compensation actuator (17) to compensate gravitational forces acting on said position-controlled device (11)” as recited in independent claims 1 and 10; and
2. “characterized in that at least one gravity compensation controller uses output signals generated by the or each position controller as input signals thereby

generating output signals used by at least one gravity compensation actuator to compensate gravitational forces acting on said position-controlled device” as recited in independent claim 19.

As to the traversal, as best shown in FIGS. 2 and 3, *Van Engelen* discloses a positioning device 21 selectively displacing a substrate holder 1 (i.e., a position controlled device as recited in independent claims 1, 10 and 19). To this end, *Van Engelen* teaches positioning device 21 employing linear motors 147,149,151 (i.e., the position actuators as recited in independent claims 1, 10 and 19); a laser interferometer (i.e., a position sensor as recited in independent claims 1, 10 and 19); and an electric current controller for actuating the linear motors 147,149,151 via electric currents (i.e., a position controller as recited in independent claims 1, 10 and 19). In operation, the laser interferometer measures the position of substrate holder 1 wherein the electric current controller uses measurement signals provided by the laser interferometer as input signals to generate output electric currents used by linear motors 147,149,151 for controlling a position of substrate holder 1. See, *Van Engelen* at column 14, line 25 to column 16, line 24.

Similarly, as best shown in FIGS. 2 and 5, *Van Engelen* discloses a positioning device 31 selectively displacing a mask holder 5 (i.e., a position controlled device as recited in independent claims 1, 10 and 19). To this end, *Van Engelen* teaches positioning device 31 employing linear motors 69,71 (i.e., the position actuators as recited in independent claims 1, 10 and 19); a laser interferometer (i.e., a position sensor as recited in independent claims 1, 10 and 19); and an electric current controller for actuating the linear motors 69,71 via electric currents (i.e., a position controller as recited in independent claims 1, 10 and 19). In operation, the laser interferometer measures the position of mask holder 5 wherein the electric current controller uses measurement signals provided by the laser interferometer as input signals to output electric currents used by linear motors 69,71 for controlling a position of mask holder 5. See, *Van Engelen* at column 11, line 18 to column 13, line 14.

For purposes of gravitational force compensation of holders 1 and 5, as best shown in FIGS. 7 and 9, *Van Engelen* discloses linear force actuators 205 (i.e., the gravity compensations actuators as recited in independent claims 1, 10, and 19), and an electric current controller for actuating linear force actuators 205 via electric currents (i.e., the gravity compensation controller as recited in independent claims 1, 10 and 19). To anticipate independent claims 1, 10 and 19, *Van Engelen* must teach, explicitly or inherently, the electric current controller for actuating linear force actuators 205 as inputting the electric currents outputted by the electric current controllers for actuating linear motors 147,149,151 of positioning device 21 and linear motors 69,71 of positioning device 31. However, a careful review of *Van Engelen* reveals the fact that *Van Engelen* actually teaches the electric current controller for actuating liner force actuators 205 as inputting the measurement signals of the laser interferometers of devices 21 and 31. See, *Van Engelen* at column 17, line 10 to column 18, line 39.

In particular, as best shown in FIG. 9, *Van Engelen* teaches equations utilizing the measurements signals of the laser interferometers for gravity center position $G_s (X_s, Y_s)$ of substrate holder 1 and for gravity center position $G_M (X_M, Y_M)$ of mask holder 5 as inputs of the electric current controller for actuating liner force actuators 205 for purposes of gravitational force compensation of holders 1 and 5. See, *Van Engelen* at column 17, lines 62-65.

Withdrawal of the rejection of independent claims 1, 10 and 19 under 35 U.S.C. §102(b) as being anticipated by *Van Engelen* is therefore respectfully requested.

Claim 6 depends from independent claim 1. Therefore, dependent claim 6 includes all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claim 6 is allowable over *Van Engelen* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Van Engelen*.

Withdrawal of the rejection of dependent claim 6 under 35 U.S.C. §102(b) as being anticipated by *Van Engelen* is therefore respectfully requested.

Claim 15 depends from independent claim 10. Therefore, dependent claim 15 includes all of the elements and limitations of independent claim 10. It is therefore respectfully submitted by the Applicant that dependent claim 15 is allowable over *Van Engelen* for at least the same

reason as set forth herein with respect to independent claim 10 being allowable over *Van Engelen*. Withdrawal of the rejection of dependent claim 15 under 35 U.S.C. §102(b) as being anticipated by *Van Engelen* is therefore respectfully requested.

Claim 21 depends from independent claim 19. Therefore, dependent claim 6 includes all of the elements and limitations of independent claim 19. It is therefore respectfully submitted by the Applicant that dependent claim 21 is allowable over *Van Engelen* for at least the same reason as set forth herein with respect to independent claim 19 being allowable over *Van Engelen*. Withdrawal of the rejection of dependent claim 21 under 35 U.S.C. §102(b) as being anticipated by *Van Engelen* is therefore respectfully requested.

- C. Examiner Barnes rejected claims 2-5, 11-14 and 20 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,844,666 to *Van Engelen* et al. in view of U.S. Patent No. 4,964,22 to *Breyer* et al.

Claims 2-5 depend from independent claim 1. Therefore, dependent claims 2-5 include all of the elements and limitations of independent claim 1. It is therefore respectfully submitted by the Applicant that dependent claims 2-5 are allowable over *Van Engelen* in view of *Breyer* for at least the same reason as set forth herein with respect to independent claim 1 being allowable over *Van Engelen*. Withdrawal of the rejection of dependent claims 2-5 under 35 U.S.C. §103(a) as being unpatentable *Van Engelen* in view of *Breyer* is therefore respectfully requested.

Claims 11-14 depend from independent claim 10. Therefore, dependent claims 11-14 include all of the elements and limitations of independent claim 10. It is therefore respectfully submitted by the Applicant that dependent claims 11-14 are allowable over *Van Engelen* in view of *Breyer* for at least the same reason as set forth herein with respect to independent claim 10 being allowable over *Van Engelen*. Withdrawal of the rejection of dependent claims 11-14 under 35 U.S.C. §103(a) as being unpatentable *Van Engelen* in view of *Breyer* is therefore respectfully requested.

Claims 20 depends from independent claim 19. Therefore, dependent claim 20 includes all of the elements and limitations of independent claim 19. It is therefore respectfully submitted by the Applicant that dependent claim 20 is allowable over *Van Engelen* in view of *Breyer* for at least the same reason as set forth herein with respect to independent claim 19 being allowable over *Van Engelen*. Withdrawal of the rejection of dependent claim 20 under 35 U.S.C. §103(a) as being unpatentable *Van Engelen* in view of *Breyer* is therefore respectfully requested.

Claim Objections. In the Non-Final Office Action, Examiner Barnes objected to claims 7-9, 16-18, 22 and 23 as reciting allowable subject matter, but being dependent upon a rejected base claim and any intervening claim. The Applicant respectfully acknowledges the allowable subject matter of claims 7-9, 1-18, 22 and 23. However, in view of the failure of the art of record, particularly *Van Engelen*, to anticipate or render obvious independent claims 1, 10 and 19, the Applicant respectfully reserves the right to rewrite claims 7-9, 16-18, 22 and 23 in independent form for allowance purposes.

SUMMARY

The Applicant respectfully submits that claims 1-23 as listed herein fully satisfy the requirements of 35 U.S.C. §§102, 103 and 112. In view of the foregoing, favorable consideration and early passage to issue of the present application is respectfully requested. If any points remain in issue that may best be resolved through a personal or telephonic interview, Examiner Barnes is respectfully requested to contact the undersigned at the telephone number listed below.

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Respectfully submitted,
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